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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,398	11/20/2006	Satoshi Tomita	TYOS127328	8636
26389 7590 03/29/2010 CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347				
EXAMINER				
VETTER, ROBERT A				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
03/29/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/595,398

**Applicant(s)**

TOMITA ET AL.

**Examiner**

ROBERT VETERE

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/GS/US)  
Paper No(s)/Mail Date 11/20/06.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Examiner's Comments*

A preliminary amendment, amending claims 2-5 and 8, was received and entered on 11/20/2006.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(a) as being anticipated by Akamatsu et al. (Eur. Phys. J. D 24, pp. 377-380).

**Claims 1 and 7-9:** Akamatsu teaches a method for producing a composite film of nickel nanoparticles and polyimide (Abst.) comprising the steps of: treating a polyimide film with aqueous KOH (claimed alkali solution) (p. 377, Col. 2 through p. 378, Col. 1) to form carboxyl groups on the polyimide film (Abst.), contacting the film with nickel ions (p. 378, Col. 1) which are adsorbed in the polyimide film (claimed dope) (Abst.) and thermally reducing the in hydrogen gas (claimed reducing gas) to produce a metal nanoparticle composite film (p. 378, Col. 2, Abst.). Akamatsu further teaches that the size of the nanoparticles (claimed volume filling ratio and thickness of the nanoparticle layer) is controlled by the heat treatment step (p. 379, Col. 1).

**Claim 2:** Akamatsu further teaches that the thickness of the nanoparticle film can be adjusted by additional heat treatment steps (p. 379, Col. 1). That is, by heating the nanoparticles for a longer period of time, the thickness of the film is adjusted.

**Claim 3:** Akamatsu also teaches that the additional heat treatment step is performed at a temperature different from the first heat treatment step (p. 379, Col. 1).

**Claim 5:** Akamatsu also teaches that the first heat treatment step is performed at 300°C and the second heat treatment step is performed at 350°C (p. 379, Col. 1).

**Claim 4:** While Akamatsu fails to expressly teach that the second temperature is lower than the first temperature, Akamatsu also teaches that modification of the nanoparticles fails when the second

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heat treatment step is below 200°C (p. 379, Col. 1). Thus, Akamatsu implicitly teaches that a second temperature between 200-300°C (i.e. lower than the first temperature) is suitable for modifying the thickness of the nanoparticles.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Akamatsu in light of van de Veerdonk et al. (US 7,029,773).

**Claim 6:** Akamatsu teaches that the second heat treatment is performed in a reducing gas to modify the particles by annealing them (p. 379, both columns), but fails to teach that it is performed in an inert gas. van de Veerdonk teaches a method of modifying nanoparticles by annealing the nanoparticles and explains that an inert gas can be used in place of a reducing gas when it is desirable to prevent further reduction of the particles (5:61-6:12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have performed the second heat treatment step under an inert gas in the method of Akamatsu when it was desirable to prevent further reduction of the nanoparticles with the predictable expectation of success.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT VETERE whose telephone number is (571)270-1864. The examiner can normally be reached on Mon-Fri 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Vetere/  
Examiner, Art Unit 1792

/Michael Cleveland/  
Supervisory Patent Examiner, Art Unit 1792